

RECLAMATION

Managing Water in the West

Advanced Water Treatment Prize Competitions

Turning Desalination Innovation into a Global Sporting Event

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U.S. Department of the Interior
Bureau of Reclamation

Prize Competitions is a Tool That Enables Joy's Law

Joy's Law:

"No Matter who you are, most of the smartest people work for someone else"

"It is better to create an ecosystem that gets all the world's smartest people toiling in your garden for your goals"

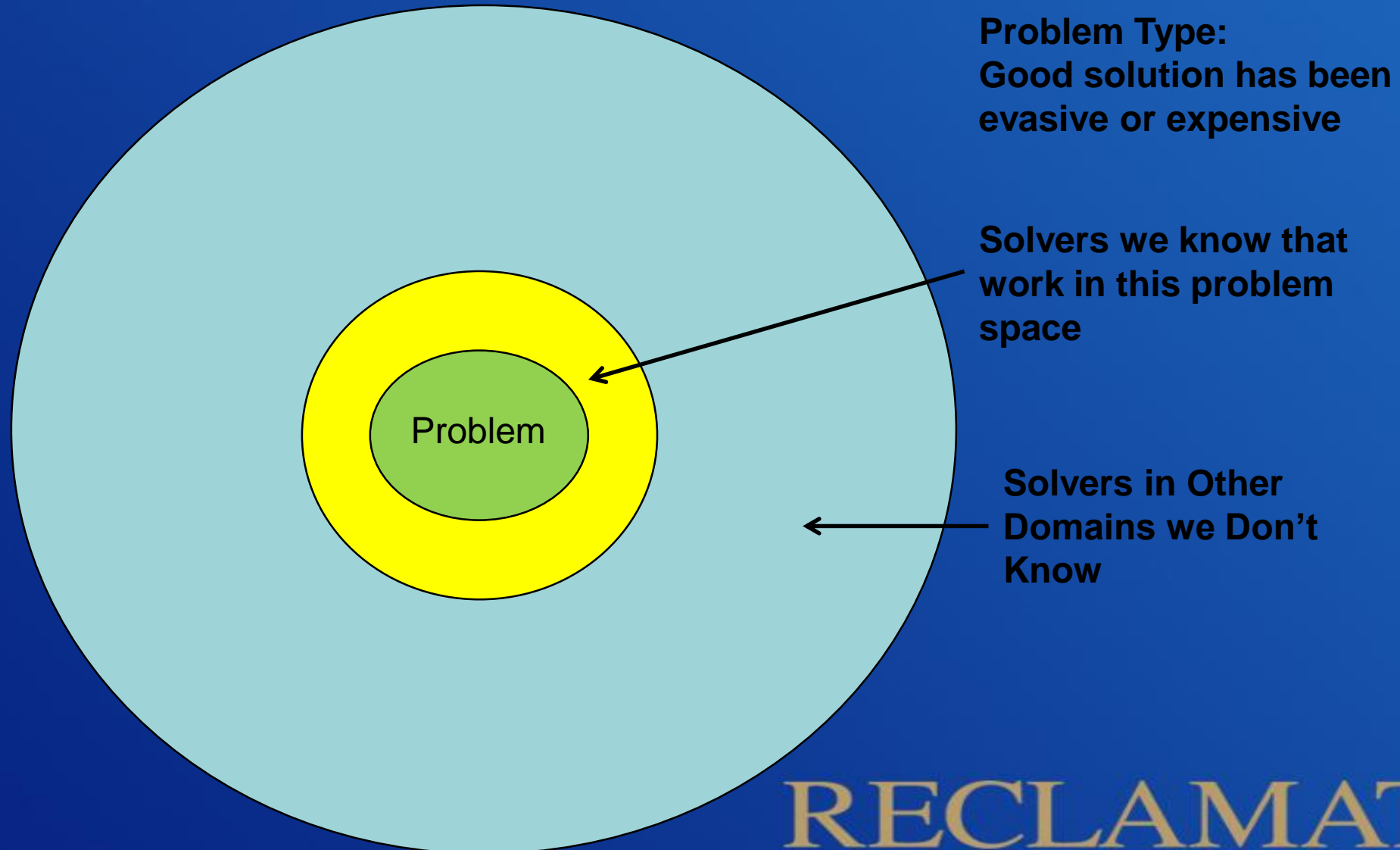
Bill Joy, Sun Microsystems co-founder

How does a prize competition (aka challenge) work?

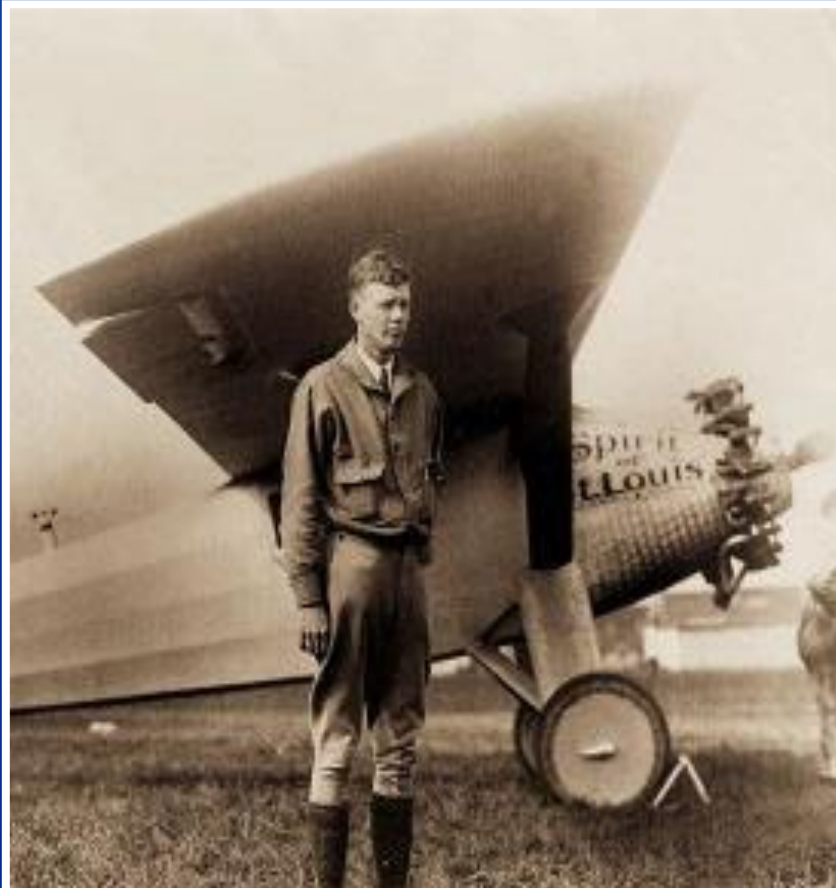
Got a problem?

- Tell the world about it and the what a winning solution would have to do,
- Challenge anybody in the world to bring you that winning solution,
- Add a monetary and/or non-monetary prize to incentivize the competition,
- Launch the competition ,see what you get and make awards accordingly.

Prize Competition Objective and Target Audience



Prize Competitions Not New in the Private Sector

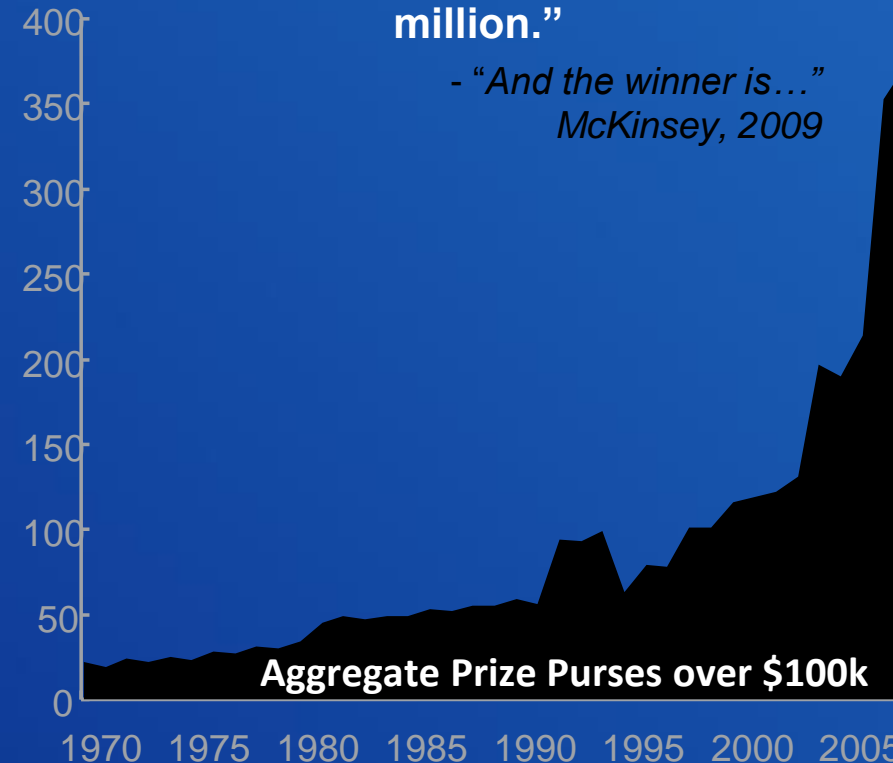


1919 Orteig Prize

Charles Lindbergh: Non-Stop Flight NY-Paris

“[T]otal funds from large prizes have more than tripled over the last decade to surpass \$375 million.”

*- “And the winner is...”
McKinsey, 2009*



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A Sampling of Private Sector Prize Competition Platforms and Service Providers

INNOCENTIVE[®]

NINESIGMA[®]

XPRIZE[®]

 **Common Pool**

 **[topcoder][™]**
Challenge yourself. Get paid.
\$69,316,885.00 in cash awarded to date.

S E N S I S
Challenges

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Water Prize Competition Center

Share your expertise and ideas!

You can help solve some of the most critical water and water-related resource problems facing our Nation!

Water Availability



Ecosystem Restoration



Infrastructure Sustainability



Learn more at www.usbr.gov/research/challenges

Authorized by the America COMPETES Act of 2010 (15 USC 3719)

[See White House Blog about the Water Prize Competition Center](#)

Advanced Water Treatment Grand Challenge Framework

Starting Late 2016 - Turning Desal Innovation into a Global Sporting Event



[See Partnership Sources Sought Notice](#)

Follow us at

<https://www.challenge.gov/agency/departments-of-the-interior/bureau-of-reclamation/>

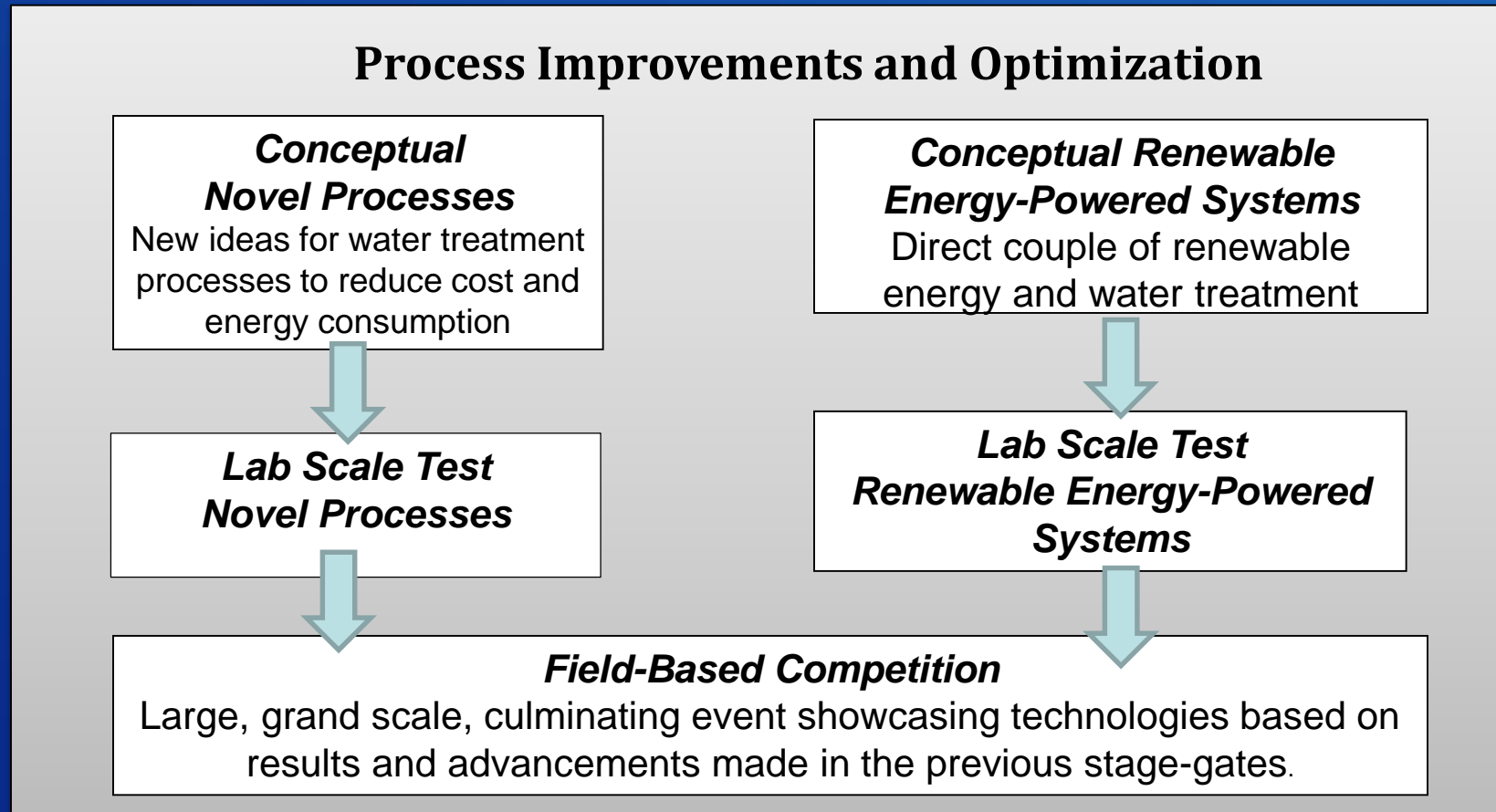
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Advanced Water Treatment Grand Challenge Framework

Turning Desal Innovation into a Global Sporting Event

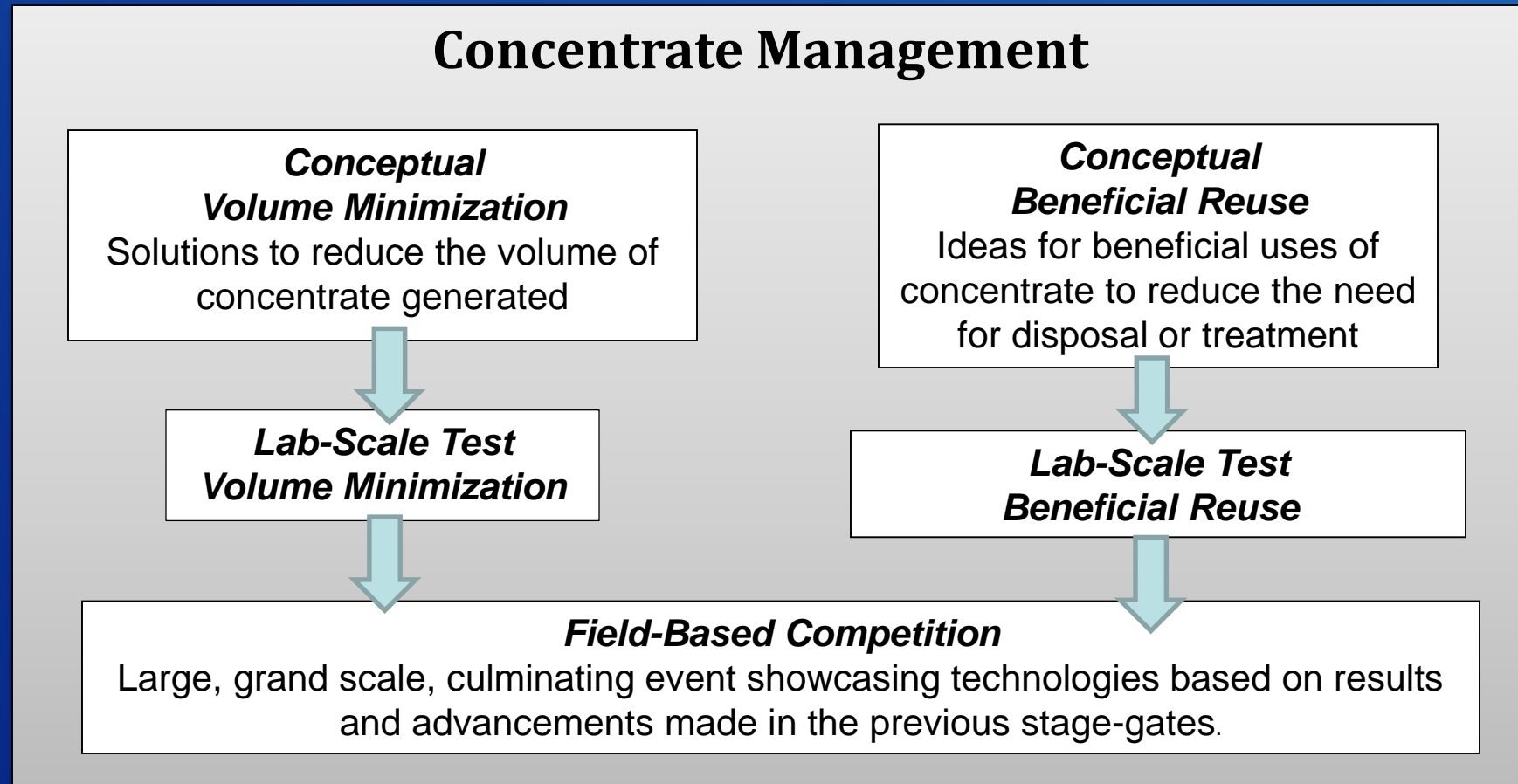
Blast through Cost and Energy Barriers with Prize Competitions



Advanced Water Treatment Grand Challenge Framework

Turning Desal Innovation into a Global Sporting Event

Blast through Cost and Energy Barriers with Prize Competitions



WATER

PRIZE COMPETITION CENTER

Hundreds of thousands in prize \$\$\$!



Can YOU help
Desalination plants
make more water and
less concentrate?

Follow us at Challenge.gov
(search Reclamation)

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Managing Water in the West



More Water, Less Concentrate: Grand Challenge – Stage 1



More Water - Less Concentrate: Grand Challenge Stage 1

When: Planned launch Fall 2016

Problem Statement: As the demand for fresh water increases, the need to develop new water supplies from non-traditional water sources, such as saline (brackish) groundwater and surface water using desalination technologies continues to grow. Nation-wide, desalination can help meet the increasing demand for fresh water, diversify water supply portfolios, and improve water supply reliability, particularly in areas affected by climate change, population growth and drought.

The by-product from commonly employed desalination technologies, such as reverse osmosis, is a highly saline waste stream, termed "concentrate." In coastal areas, brine concentrate can be returned to the ocean. However, in inland areas, the high cost and complexity associated with the management of concentrate, through disposal or volume minimization, is one of the major factors limiting more widespread use of desalination.

The most commonly employed concentrate management methods are disposal to the local sewer system, discharge to surface water sources, and disposal in evaporation ponds or deep well injection. Surface and sewer discharge alternatives are unsustainable because they result in high salt loading to fresh, surface water sources. Most utilities using surface discharge are operating under temporary permits and need to find an alternative solution for long term use. Evaporation ponds and deep well injection are costly and have potentially adverse environmental impacts. Technologies that reduce or eliminate concentrate liquid volume are energy intensive, costly, and operationally complex. Numerous technologies have been pilot-tested in various locations, but none have been shown to be cost-competitive with alternatives such as surface discharge and deep-well injection.

Brief description of the potential impact from a successful solution to this problem: The number of municipalities using reverse osmosis continues to increase to meet more stringent water quality requirements and to provide additional water capacity. Solutions developed through prize competitions in concentrate management will help to enable these municipalities in providing cost effective, high quality drinking water to their customers while meeting permitting and regulatory requirements in an environmental sound and sustainable manner.

Prize Competition Scope: This is a Grand Challenge envisioned to consist of 3 main stages. The decision to proceed to Stage 2 will depend on the results of Stage 1 and other considerations.
Stage 1 is a requires a conceptual white paper submitted with a total prize purse of \$150,000.
Stage 2 is envisioned as a subsequent Reduction-to-Practice (RTP) Challenge to demonstrate proof-of-concept data at the bench scale with a total prize purse of at least \$450,000.
Stage 3 is envisioned as a Reduction-to-Practice demonstration at full-scale in a field-test setting with a total prize purse of at least \$500,000.

Reclamation also plans to invite industry, non-profit organizations, and venture capital representatives to participate as partners and/or, official judges of this competition and seek potential business deals with competition participants.

Learn more about the Water Prize Competition Center at: usbr.gov/researchchallenges

Follow Reclamation competitions at: <http://www.challenges.gov/participate/department-of-the-interior/bureau-of-reclamation>

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usbr.gov/researchchallenges/index.html

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Questions ?

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